

Anechoic Chambers

For EMC testing and EMC compliance/

For antenna design and evaluation/Multi-functional types

10m-method/3m-method/Compact types

Issue date: February 2007

- All specifications are subject to change without notice.
 - Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
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EMC Components Anechoic Chambers

RADIO WAVE ANECHOIC CHAMBERS FOR EMS TESTING AND EMC COMPLIANCE

- Created as a series of anechoic chambers that feature compact, highly efficient wave absorption functions, which utilize the world's finest wave absorbing ferrite materials and extremely durable styrene foam. This series is perfectly equipped for use in EMI measurement and immunity testing of all types of machinery and equipment.
- Feature specifications for standardization that meet completely with the world's EMC-related standards stipulated by EN, FCC, VCCI, CISPR, ISO and so on and have perfectly designed space-saving measurement features.
- We have established parts design and usage that secure easy of use and effectiveness as well as designs that work perfectly with equipment to be tested and thorough supervision-of-construction work systems.
- We offer a wide-range of actual construction achievements that have been performed at their maximum level to meet with the demanding and diversified needs of public institutions such as UL and other leading companies. TDK EMC technical service is continuing to be developed in charge of accumulating know-how for utilization in radio wave anechoic chambers.

RADIO WAVE ANECHOIC CHAMBERS USED FOR ANTENNA DESIGN AND EVALUATION

- Make use of highly durable wave absorbers that utilize of carbon mixed polyethylene foam. Brings about the realization of an unsurpassed electromagnetic environment.
- Through the employment of originally developed absorbers which maximize outstanding absorption characteristics, it is possible to meet a wide range of measurement needs spanning from FM bands to microwaves and extremely high frequency waves (76MHz to 100GHz) such as those used in canted incidents, wide-bands corresponding to extremely high-frequency waves, low-frequency to high-frequency wide-band-supported complex types (ferrite tile and styrene foam) and so on.
- Features a vast collection of achievements in dealing in a variety of ways with the highly specific and reliable (characteristic stability/longevity) needs of government offices and laboratories of the Defense Agency and the Ministry of Posts and Telecommunications and many others.
- Able to meet realize a lowering of costs and the most appropriate designs in dealing with the diversified needs of every sector of daily life including evaluating mobile communication equipment and automobile glass antennas.
- The development and provision of wave absorption panels for eliminating TV ghost images and evaluation systems.
- The development of absorbers and evaluation systems for preventing false antenna images employed by the Defense Agency and the communication industry.

MULTI-FUNCTIONAL TYPES OF RADIO WAVE ANECHOIC CHAMBERS

We have received high praise and earned vast achievements with our all-encompassing approach to the design and construction of unique radio wave anechoic chambers such as radio wave anechoic chambers for the joint use of EMC countermeasure/evaluation and antenna design/evaluation and anechoic chambers for the joint use of sound wave testing and radio wave testing.



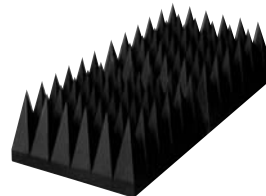
RADIO WAVE ABSORBERS



IP-090BLA (Anechoic chambers for EMS testing and EMC compliance)



IP-045C (Anechoic chambers for EMS testing and EMC compliance)

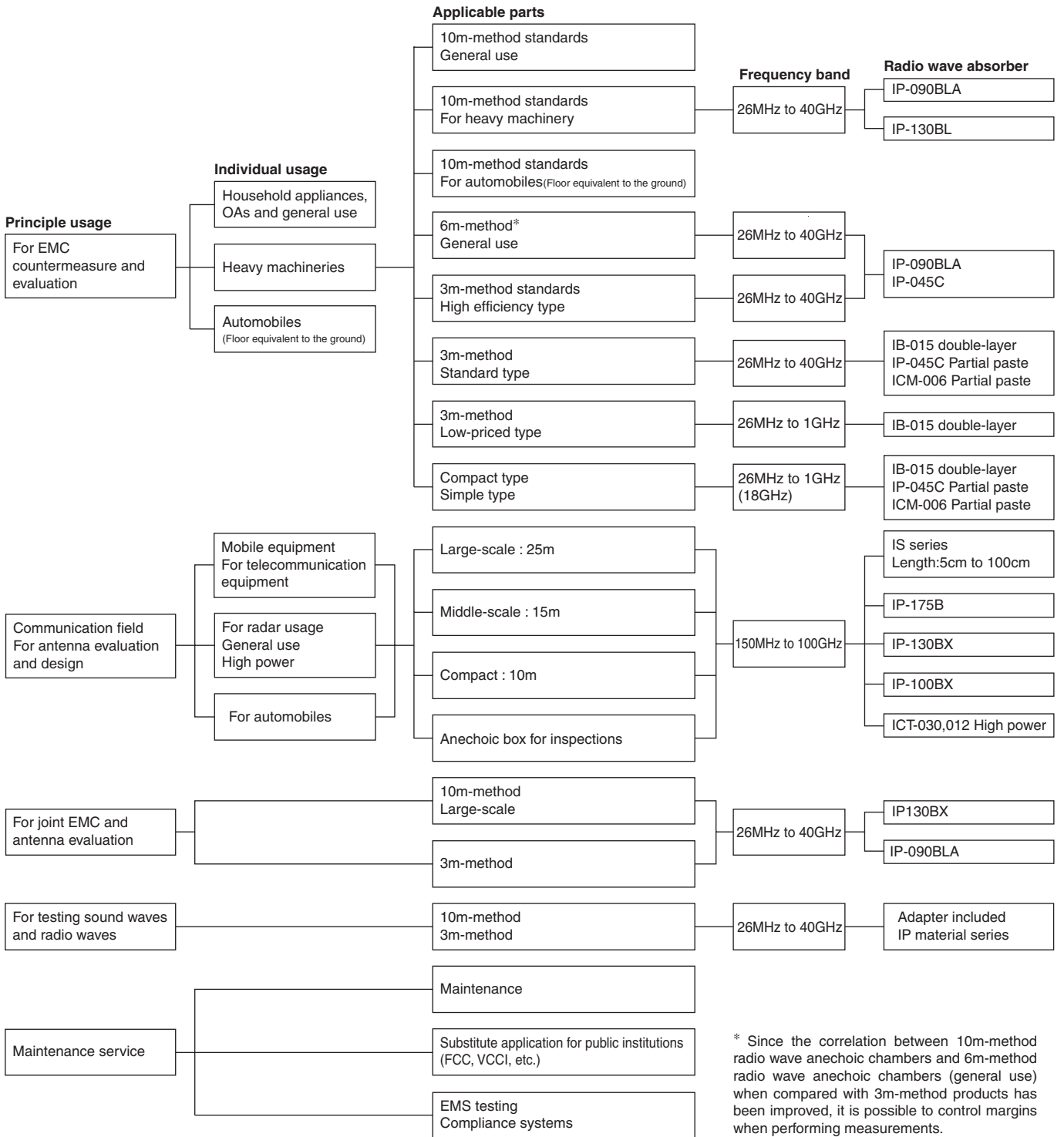


IS-030 (Anechoic chambers for antenna design and evaluation)



IS-S080 (Floor type electromagnetic field immunity measurement)

TDK RADIO WAVE ANECHOIC CHAMBER LINE-UP



TYPICAL SPECIFICATIONS

10/3m-Method

Type	10m		3m	
	Standard	High performance	Standard	High performance
Turntable diameter	ø3m	ø5m	ø1.5m	ø1.5m
Product name of wave absorber	IP-090BLA	IP-130BL	IP-045C(Main reflection surface)	IP-090BLA
Frequency band	30MHz to 18GHz	30MHz to 18GHz	30MHz to 18GHz	30MHz to 18GHz
Site attenuation characteristics	±3dB	±2.5dB	±3.5dB	±3dB
Shield surface dimensions L×W×H	18×14×8.6m	23×15×9m	9×6×5.7m	9×7.5×6.2m
Interior effective dimensions L×W×H	14.8×10.8×7.6m	19.2×11.2×7.3m	8.5×5×5.2m	7×5.5×5.2m

Compact Type

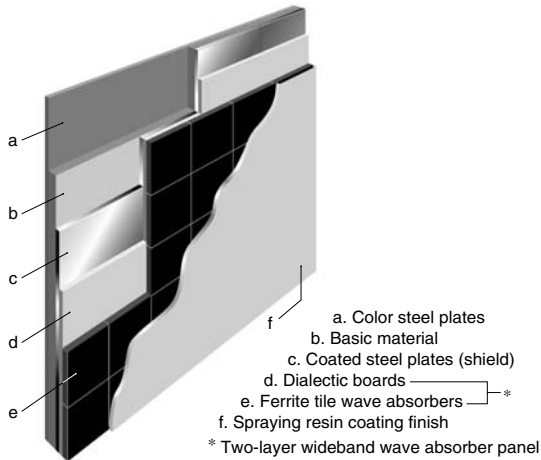
Type	CAC-S1(Standard)		CAC-S2(Standard)	
Product name of wave absorber	Ceiling, wall	X-131(double-layer)	IB-015(t:6.5mm, double-layer)	
	Floor	X-131(double-layer)	Metalic surface+X-131 (double-layer panel)	
Site attenuation characteristics	±3dB(Including correction values) [30MHz to 1GHz, horizontal-vertical]		±6dB(Open site comparisons) [30 to 100MHz, horizontal] ±4dB(Open site comparisons) [100MHz to 1GHz, horizontal] ±4dB(Open site comparisons) [30MHz to 1GHz, vertical]	
Electric field characteristics	80MHz(26MHz) to 1GHz 0 to 6dB		80MHz(26MHz) to 1GHz 0 to 6dB	
Shield surface dimensions L×W×H	7×3×3m		7×3×3m	

Type	CAC-S3 (EMI high pass band type)		CAC-S6 (High performance/EMI high pass band type)		CAC-S7 (High performance/EMI/EMS high pass band type)	
Product name of wave absorber	Ceiling, wall	IB-015(t:6.5mm, double-layer) +IP-045C(Main reflection surface)	IB-015(t:6.5mm, double-layer) +IP-045C(Main reflection surface)		IB-015(t:6.5mm, double-layer) +IP-045C(Main reflection surface)	
	Floor	Metalic surface+X-131 (double-layer panel)	Metalic surface+X-131 (double-layer panel)		Metalic surface+X-131 (double-layer panel)	
Site attenuation characteristics	±6dB(Open site comparisons) [30 to 100MHz, horizontal] ±4dB(Open site comparisons) [100MHz to 18GHz, horizontal] ±4dB(Open site comparisons) [30MHz to 18GHz, vertical]		±4dB(Open site comparisons) [30MHz to 18GHz, horizontal-vertical]		±4dB(Open site comparisons) [30MHz to 18GHz, horizontal-vertical]	
Electric field characteristics	80MHz(26MHz) to 1GHz 0 to 6dB		80MHz(26MHz) to 1GHz 0 to 6dB		80MHz(26MHz) to 18GHz 0 to 6dB	
Shield surface dimensions L×W×H	7×3×3m		7×4×3m		7×4×3m	

Two-layer wideband wave absorbers

Principle types of application

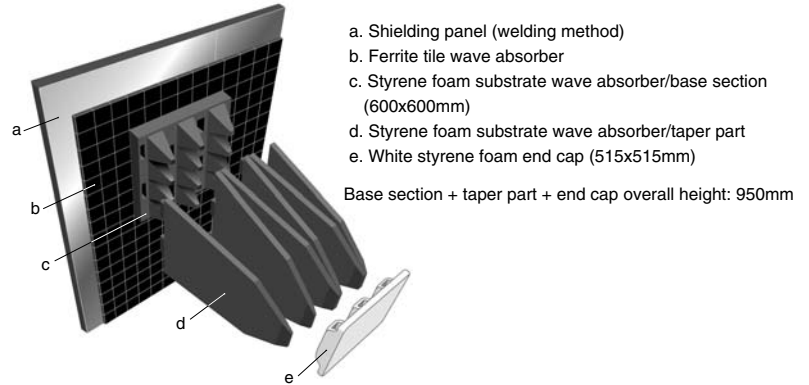
3m-method low cost types/compact portable types



Unit type composite wave absorber IP-090BLA

Principle types of application

3m-method, 10m-method, radar evaluation, all types of antenna evaluation, mid and large scale mobile radios



This is a newly developed unit configuration composite wave absorber that has had its electromagnetic wave absorption characteristics fortified over a wide band range and has been made even more compact/ lightweight and low in cost. In addition to 3m-method and 10m-method radio wave anechoic chambers, we have realized construction capacities for large wave anechoic chambers used for special applications and all other types of wave anechoic chambers that are much more compact than of those in the past.

Further, we have established superior wave absorption characteristics, wide ranging weight reduction and space saving/cost reduction abilities for storage and shipping procedures with the utilization of original dielectric loss absorption designs that combine base sections with plate taper parts. Moreover, we have made it possible to reduce the time period of construction (10m-method) by 38% over conventional types by improving design accuracy for construction sites and by elevating construction efficiency rates.

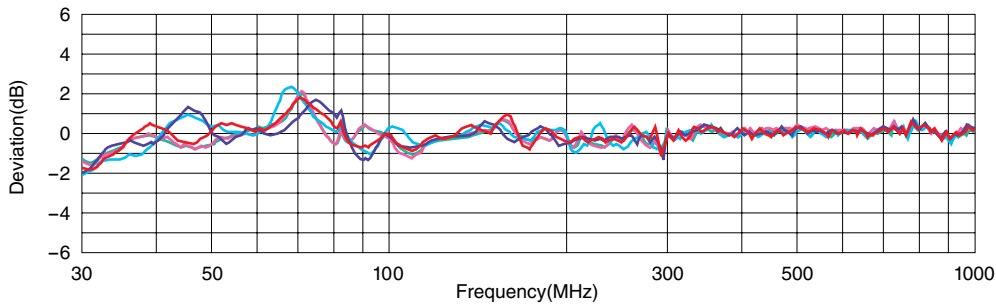
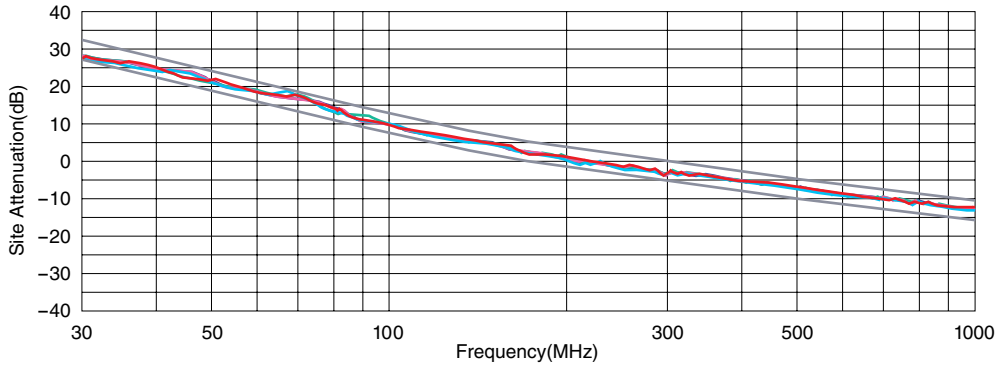
SITE ATTENUATION CHARACTERISTICS OF 10m-METHOD ANECHOIC CHAMBER

Type 10m Semi Anechoic Chamber
Offset : 0.0 Degree offset
Dimension L23xW15xH8.6m

Absorber : IP-130BL
Biconical : Schwarzbeck BBA9106
Log Periodic : Schwarzbeck UHL9107

Polarization : Horizontal
Tx Antenna Height : 1m
Antenna Distance : 10m
Quiet Zone : 2.5m Radius

Center Front Back Right Left

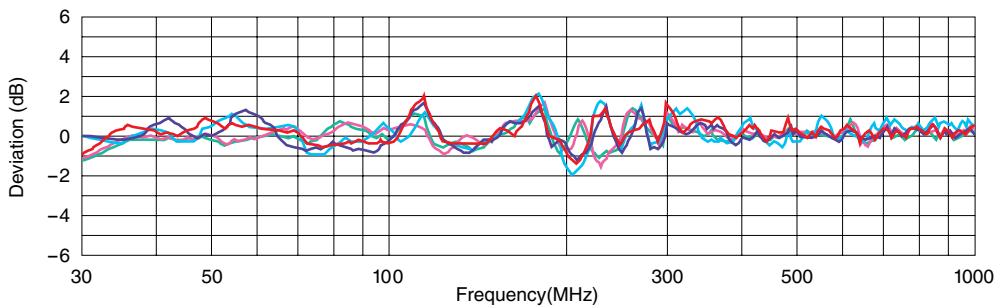
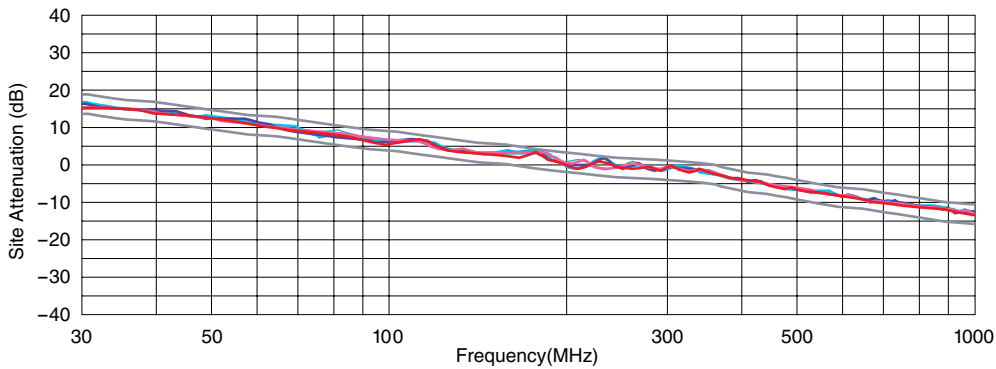


Type 10m Semi Anechoic Chamber
Offset : 0.0 Degree offset
Dimension L23xW15xH8.6m

Absorber : IP-130BL
Biconical : Schwarzbeck BBA9106
Log Periodic : Schwarzbeck UHL9107

Polarization : Vertical
Tx Antenna Height : 1m
Antenna Distance : 10m
Quiet Zone : 2.5m Radius

Center Front Back Right Left



Examples of capability specifications

30MHz to 1GHz
Within ±2.5dB of the standardization theoretical site attenuation (NSA) characteristics stated in the ANSI C63.4

Within ±2.5dB of the standardization theoretical site attenuation (NSA) characteristics stated in the VCCI V-3/97.04

1 to 40GHz
FWithin ±2.5dB of attenuation standard values of the FCC filing open site

Reproducibility
Within ±0.5dB of reproducibility during measurement of site attenuation with the same conditions